

**WASHINGTON STATE DEPARTMENT OF ECOLOGY
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
WASTEWATER DISCHARGE PERMIT
FORT JAMES CORPORATION
CAMAS, WASHINGTON**

**FACT SHEET
PERMIT No. WA 000025-6**

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the State of Washington on the basis of Chapter 90.48 RCW which defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix C--Response to Comments.

GENERAL INFORMATION	
Applicant	Fort James Camas
Facility Address	401 N. E. Adams Street, Camas, Washington 98607
Type of Facility	Bleached Pulp and Paper
Discharge Location	Columbia River, River Mile 120 Outfall 001 Latitude: 45° 34' 15" N Longitude: 122° 24' 45" W.
Water Body ID Number	Segment No. 26 WRIA 99 WA-CR-1010

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

LOCATION

The Camas Mill is a pulp and paper manufacturing complex that is bound on three sides by the City of Camas, Washington. A little over a quarter of the mill site lies north of the Camas Slough (an arm of the Columbia River that connects to the Washougal River). The rest of the mill resides on Lady Island which is situated directly south of the slough and fronts the Columbia River. The wastewater treatment system and a solid waste landfill are located on this island.

INDUSTRIAL PROCESS

The mill produces bleached kraft paper, tissue, and toweling products. The nominal production rates for this pulp and paper facility are presented in the following table.

Production Rate Table (Machine Air Dry Tons/ Day)

Bleached Kraft Paper Grade	1,338
Non-integrated Tissue	30
Secondary Fiber Non-Deink	<u>14</u>
Total Production	1,382

RECEIVING WATER

Outfall 001

Columbia River

Class A Water Quality

River Mile 120

Latitude: 45° 34' 15" Longitude: 122° 24' 45"

Segment No. 26 WRIA 99 WA-CR-1010

Outfall 002

Columbia River (Camas Slough)

River Mile 120

Latitude: 45° 35' 00" Longitude: 122° 24' 30"

DISCHARGE OUTFALL

Outfall 001

Outfall 001 is the principal outfall. Mill wastewater and intermittent discharge of groundwater from the sand traps on the mill well water system receive primary treatment in a 330-foot diameter clarifier followed by secondary treatment. The secondary treatment system consists of a 250 million gallon (66 acre), moderately mixed plug flow aerated stabilization basin followed by a 150 million gallon (42 acre) partially mixed aerated basin with a settling zone. The final effluent discharges through Outfall 001 which extends 384 feet into the Columbia River. Due to strong subsurface turbulence in this area of the river, the outfall has a strategically positioned single port. This design provides better dilution than the diffuser approach previously employed. The minimum water depth over the outfall is 49.6 feet.

Outfall 002

The discharge that comprises Outfall 002 travels under the Camas Mill in a concrete channel or pipe and originates in Blue Creek and Whiskey Creek on the southeastern slope of Prune Hill. It contains Lacamas Lake water, mill water treatment filter backwash, and stormwater from the City of Camas. The outfall is a direct discharge to the north shore of the Camas Slough.

Outfall 003

Outfall 003 is a sand trap purge from the well field located in the southeast corner of the mill. The outfall is a direct discharge to the north shore of the Washougal River. In December 2002, Fort James notified the Department of their intention to eliminate Outfall 003. The outfall will be eliminated by routing to Outfall 001. Fort James' wastewater treatment system was designed and capable of a treatment up to 76 million gallons per day (MGD) of raw wastewater with its primary and secondary treatment. The maximum flow from Outfall 003 is at 0.076 MGD and current outfall 001 flow is 32 to 37 MGD. Therefore, the diversion of Outfall 003 to 001 will not present a significant burden on the wastewater treatment system. Ecology analyzed the reasonable potential of the combined discharge and determined that the combined Outfall 001 meets the water quality standards, WAC 173-201A.

STORM WATER TREATMENT

The Permittee collects, treats, and discharges stormwater as part of the process discharge and has met all of required planning and monitoring requirements. Stormwater at the Specialty Minerals property is collected and discharged to the Fort James treatment system. Stormwater discharge limitations are consistent with and incorporated in the process effluent discharge limitations.

PERMIT STATUS

The previous renewed permit for this facility was initially issued on May 10, 1991. The effluent limits presently in effect are:

Outfall 001

<u>Parameter</u>	<u>Effluent Limitations</u>		<u>Monitoring Requirements</u>	
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Frequency</u>	<u>Sample</u>
Biochemical Oxygen Demand (5-day), lbs/day	29,250	56,000	Daily	24-Hour Composite
Total Suspended Solids, lbs/day	47,250	88,300	Daily	24-Hour Composite
AOX	--	--	Weekly	24-Hour Composite
Dioxin (2,3,7,8-TCDD)	--	10 ppq	Quarterly	24-Hour Composite
pH	5.0 to 8.5		Continuous	Recording
Flow, MGD	--	--	Continuous	Recording
Temperature, °F	--	--	Continuous	Recording
Production, Off-Machine tons/day			Daily	

Outfall 002

<u>Parameter</u>	<u>Effluent Limitations</u>		<u>Monitoring Requirements</u>	
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Frequency</u>	<u>Sample</u>
pH	-----6.0 to 9.5-----		Continuous	Recording
Flow, MGD	--	--	Continuous	Recording

An application for permit renewal was submitted to the Department on November 6, 1995, and was amended on November 18, 1999.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS MODIFIED PERMIT

The last compliance water inspection was conducted August 2001. The Permittee was found to be in compliance with its permit limits.

During the last five years (1996-2000), the Permittee has generated the following compliance record based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted by the Department.

Outfall 001

Parameter	In Compliance – Percent of Time	Measurement Frequency
AOX	100	Weekly
Bioassay	100	Quarterly
Biochemical Oxygen Demand	99+	Daily
Dioxin (2,3,7,8-TCDD)	99+	Quarterly
pH	100	Continuous
Temperature	100	Continuous
Total Suspended Solids	100	Daily
Other	98+	Continuous

Outfall 002

Parameter	In Compliance – Percent of Time	Measurement Frequency
pH	99+	Continuous
Other	99+	Continuous

A summary of specific non-compliance issues is as follows:

Outfall 001

Date	NOV No.	Penalty - \$	Comments
10/18/96	DE-97WQI048	9000	Dioxin excursion.
5/19/97	DE-97WQI057	5000	Effluent pump station bypass— control failure.
12/26/99	DE-00WQIS305	5000	Effluent pump station bypass—power failure. The Permittee was required to install a backup power generator.
5/12/00	DE-00WQIS1252	1000	Foam blew into the Camas Slough.

Outfall 002

Date	NOV No.	Penalty - \$	Comments
2/01/96	DE-96WQI019	1000	Sulfuric acid spill.
2/10/96	DE-96WQI044	2000	Hydrochloric acid spill.
6/06/96	DE-96WQI006	2000	Caustic spill. The Permittee was required to rebuild Blue Creek conduit to prevent a reoccurrence.
8/21/97	DE-97WQI078	2000	Sewage spill. The Permittee was required to rebuild the sewer and block overflows to Blue Creek.

WASTEWATER CHARACTERIZATION

During the past permit cycle, the wastewater discharge was characterized by the following regulated parameters:

Table 1: Wastewater Characterization (1999-2000)

Outfall 001

Parameter	Biennial Average	High/Low Range	Concentration*
Flow – MGD	50.2	53.7/42.7	--
pH	--	6.4/7.8	--
BOD - lbs/day	21,800	28,200/12,100	67/34
TSS - lbs/day	26,500	35,300/15,300	79/43

Outfall 002

Parameter	Biennial Average	High/Low Range	Concentration*
Flow – MGD	10.7	18.9/4.6	--
pH	--	6.7/8.3	--

* Milligrams per liter [mg/L].

STATE ENVIRONMENTAL POLICY ACT (SEPA)

There are no SEPA requirements for this permit.

PROPOSED PERMIT LIMITATIONS

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology or water quality based. Technology based limitations are based upon the treatment methods available to treat specific pollutants in a particular industrial subcategory. Technology based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The more stringent of these limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based, in part, on information received in the application. The effluent constituents in the application were evaluated on a technology and water quality basis. The limits necessary to meet the rules and regulations of the State of Washington were determined and included in this permit. Ecology does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Effluent limits are not always developed for pollutants that may be in the discharge, but not reported as present in the application. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department of Ecology. Permittee may be in violation of the permit if the constituent is exceeded as defined in 40 CFR 122.42(a) until the permit is modified to reflect additional discharge of pollutants.

DESIGN CRITERIA

The design criteria for the treatment facility are sufficient to provide secondary treatment to all wastewater. The wastewater treatment aerated basin may be dredged with Ecology's approval when it needs dredging.

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria. The design criteria for this treatment facility are taken from the permit applications submitted to Ecology. The original design parameters are as follows:

Table 2: Design Standards for Peak Monthly Waste Load with Adequate Safety Factors

Fort James Camas L.L.C.	
Parameter	Design Capability
Flow - Monthly Average (Maximum Month)	76.0 MGD
BOD ₅ - Influent Loading	174,000 lbs/day
TSS - Influent Loading	143,000 lbs/day
Temperature	110°F

TECHNOLOGY BASED EFFLUENT LIMITATIONS

Technology based limitations are set by federal and state regulations or are developed on a case-by-case basis. The federal effluent guidelines for best practicable control technology (BPT) and best conventional pollutant control technology (BCT) are equivalent as defined in Part 430, Subpart B J, and L. It is Ecology policy to determine if the federal effluent guidelines are equivalent to all known and reasonable treatment (AKART) for these categories of papermaking, which is discussed herein. Also, in 1998, EPA revised the effluent guidelines for both air and water emissions to consider conventional, nonconventional, and toxic pollutants (including chlorinated organic compounds).

Ecology has determined that any further treatment beyond secondary treatment would only add a few percentage points to the removal efficiencies for BOD and TSS since the best wastewater treatment system removes about 95 percent of the influent BOD and TSS. The aerated lagoon system is very stable with respect to treatment efficiency and accommodating shock BOD loadings.

The test procedures for BOD and TSS have a great deal of variability in their results when comparing different laboratories or different technicians performing the tests. In developing the effluent guidelines, EPA took this variability into consideration for the daily maximum allowance and the 30-day average allowance for BOD and TSS.

Therefore, in consideration of the above facts, Ecology has concluded that the aerated lagoon system design is determined to be equivalent to all known available and reasonable methods of treatment (AKART) for conventional pollutants.

The NPDES permit renewal application submitted to the Department in November 1999 for this source defined the baseline production as 1338 off-machine tons per day (OMT/D) of bleached kraft paper, 397 OMT/D of bleached sulfite paper, 49 OMT/D of non-integrated fine paper, 30 OMT/D of non-integrated tissue paper, and 14 OMT/D of wastepaper tissue paper. On August 27, 2001, the Camas Mill announced the permanent closure of the sulfite pulp mill and four paper machines. The adjusted production baseline is 1067 OMT/D (BCT) bleached kraft paper,

271 OMT/D (NSPS) bleached kraft paper, 30 OMT/D (NSPS) non-integrated tissue paper, and 40 OMT/D (BCT) non-deinked secondary fiber for a total of 1382 OMT/D. The regulatory basis for pollutant limits is as follows:

Production Category	Production, OMT/D	Applicable Regulation
Bleached Kraft Paper (BCT)	1,067	40 CFR 430.23, Subpart B
Bleached Kraft Paper (NSPS)	271	40 CFR 430.25, Subpart B
Non-integrated Tissue (NSPS)	30	40 CFR 430.125, Subpart L
Secondary Fiber, Non-Deink (BCT)	40	40 CFR 430.105, Subpart J
Total	1,382	

CONVENTIONAL POLLUTANTS

Table 3. Production Derived Limits

BOD						
Production Unit	ADT/Day (Off-Machine)	Basis for Limit	Monthly Average (lbs/ton)	Monthly Average (lbs/day)	Daily Maximum (lbs/ton)	Daily Maximum (lbs/day)
Bleached Kraft Paper Grade	1,067	BCT	11.0	11,737.0	21.2	22,620.4
Bleached Kraft Paper Grade	271	NSPS	9.2	2,493.2	17.0	4,607.0
Non-integrated Tissue	30	NSPS	6.8	204.0	14.0	420.0
Secondary Fiber, Non-Deink	40	BCT	14.2	198.8	27.4	383.6
Totals	1,382			14,633		28,031

TSS						
Production Unit	ADT/Day (Off-Machine)	Basis for Limit	Monthly Average (lbs/ton)	Monthly Average (lbs/day)	Daily Maximum (lbs/ton)	Daily Maximum (lbs/day)
Bleached Kraft Paper Grade	1,067	BCT	23.8	25,394.6	44.3	47,268.1
Bleached Kraft Paper Grade	271	NSPS	15.2	4119.2	29.2	7913.2
Non-integrated Tissue	30	NSPS	5.2	156.0	12.0	360.0
Secondary Fiber, Non-Deink	40	BCT	18.4	257.6	34.1	477.4
Totals	1,382			29,927		56,018.7

NON-CONVENTIONAL POLLUTANTS

EPA-established effluent limits for nonconventional pollutants, which will be effective after April 15, 2001, represented the degree of effluent reduction attainable by the application of best available technology (BAT) economically achievable from Bleached Paper Grade Kraft and Soda, Subcategory 40 CFR, Part 430.24. Mass effluent limits for adsorbable organic halides (AOX) and chloroform are based on unbleached pulp entering the bleach plant. This production basis differs from the conventional pollutant production, which is based on gross paper machine production at the off-machine reel. The paper machine production takes into account processed recycled pulp, paper machine additives, pulp mill losses, bleach plant losses, and machine paper moisture, while the unbleached screened pulp production has no other constituents or process adjustments affecting its final production determination. AOX is measured at the outfall. Chloroform is measured at the bleach plant. Table 4 defines the production and limits for AOX and chloroform in the mill's effluent.

Table 4. Production Derived Limits For Bleach Plant Discharges

AOX					
Production Unit	ADT/Day (to Bleach Plant)	Monthly Average Factor (lbs/ton)	Daily Maximum Factor (lbs/ton)	Monthly Average (lbs/day)	Daily Maximum (lbs/day)
Unbleached Pulp (Average Month)	1,124	1.246	1.902	1400.5	2137.8

CHLOROFORM					
Production Unit	ADT/Day (to Bleach Plant)	Monthly Average Factor (lbs/ton)	Daily Maximum Factor (lbs/ton)	Monthly Average (lbs/day)	Daily Maximum (lbs/day)
Unbleached Pulp (Average Month)	1,124	0.00828	0.01384	9.31	15.56

BLEACH PLANT EFFLUENT LIMITS

Bleach plant effluent limits for the following organic chemicals are established by 40 CFR 430.24 at minimum levels:

Pollutant	Minimum Level
2,3,7,8-TCDD	10 pg/L ⁽¹⁾
2,3,7,8-TCDF	31.9 pg/L ⁽¹⁾
Trichlorosyringol	2.5 µg/L ⁽²⁾

3,4,5-Trichlorocatechol	5.0 µg/L ⁽²⁾
3,4,6-Trichlorocatechol	5.0 µg/L ⁽²⁾
3,4,5-Trichloroguaiacol	2.5 µg/L ⁽²⁾
3,4,6-Trichloroguaiacol	2.5 µg/L ⁽²⁾
4,5,6-Trichloroguaiacol	2.5 µg/L ⁽²⁾
2,4,5-Trichlorophenol	2.5 µg/L ⁽²⁾
2,4,6-Trichlorophenol	2.5 µg/L ⁽²⁾
Tetrachlorocatechol	5.0 µg/L ⁽²⁾
Tetrachloroguaiacol	5.0 µg/L ⁽²⁾
2,3,4,6-Tetrachlorophenol	2.5 µg/L ⁽²⁾
Pentachlorophenol	5.0 µg/L ⁽²⁾

Notes:

⁽¹⁾ Picograms per liter.

⁽²⁾ Micrograms per liter.

EPA defines minimum level as “the level at which the analytical system give recognizable signals and acceptable calibration points.”

DIOXIN REQUIREMENTS

On June 9, 1989, Ecology listed Fort James, formerly James River II, Inc., and 7 other pulp mills as violating water quality standards for dioxin 2,3,7,8 TCDD pursuant to Section 304(1) of the Clean Water Act. The Act required that an Individual Control Strategy be issued to each discharger contributing to such violation, and that the violation be corrected within three years of Individual Control Strategy issuance.

EPA Region X issued public notice on June 15, 1990 of the Proposed Establishment of a TMDL to Limit Discharges of Dioxin to the Columbia River. EPA acted since the Columbia River contained amounts of dioxin which exceed applicable water quality standards.

To meet the water quality standard, EPA determined that a daily maximum of 1.31 mg/day should be allocated to the Fort James Camas mill. The limit is low enough that dioxin will be below the detection limit in the final effluent (10 ppq), and thus the sampling will be conducted at the bleach plant discharge. EPA estimated there would be an overall 95% reduction in dioxin discharges from the Columbia River basin bleached pulp mills.

BEST MANAGEMENT PRACTICES

Best Management Practices (40 CFR 430.28) are required to prevent leaks and spills of spent pulping liquors, soap, and turpentine. The Permittee has established a program to accomplish this objective and is implementing the program.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters (water supply, stock watering, fish and wildlife habitat, recreation, commerce, and navigation), WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Surface water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin wide total maximum daily loading study (TMDL).

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in the receiving water which are protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used, along with chemical and physical data for the wastewater and receiving water, to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in the permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The U.S. EPA has promulgated 91 numeric water quality criteria for the protection of human health that are applicable to Washington State (EPA 1992). These criteria are designed to protect humans from cancer and other diseases and are derived from evaluations of risk from fish, shellfish, drinking water, and consumption from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the State of Washington.

ANTI-DEGRADATION

The State of Washington's Anti-degradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. More information on the State Anti-degradation Policy can be obtained by referring to WAC 173-201A-070.

The Department has reviewed existing records and is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit will not cause an impairment of beneficial uses.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the water body's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

MIXING ZONES

The Clean Water Act and Washington's Water Quality Standards allow the Department of Ecology to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones are authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100. The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to the Columbia River. The Columbia River is designated a Class A receiving water in the vicinity of the outfalls. Characteristic water uses include fish and shellfish rearing and harvesting, commerce and navigation, industrial water supply, and general recreation and aesthetic enjoyment. Compliance with the permit conditions should not result in degradation of water quality or impair any beneficial uses.

SURFACE WATER QUALITY CRITERIA (201A)

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this water body are summarized below:

Fecal Coliform	100 organisms/100 ml maximum geometric mean
Dissolved Oxygen	8.0 mg/L minimum
Temperature	20° C maximum or incremental increases greater than 0.3° C above ambient
pH	6.5 to 8.5 standard units
Turbidity	less than 5 NTU above background
Toxics	No toxics in toxic amounts

CONSIDERATION OF SURFACE WATER QUALITY BASED LIMITS FOR NUMERIC CRITERIA

Pollutant concentrations in the proposed discharge exceed water quality criteria with technology based controls that the Department has determined to be AKART. A mixing zone is authorized in accordance with the geometric configuration, flow restriction, and other restrictions for mixing zones in Chapter 173-201A WAC. The mixing zone for Outfall 001 is defined as follows: (1) the mixing zone shall not extend in the downstream direction for a distance of greater than 345 feet nor extend upstream for a distance over 100 feet from the point of discharge. It shall not be wider than 100 feet, and (2) a zone where acute criteria may be exceeded shall not extend in the downstream direction for a distance greater than 35 feet nor extend upstream distance for a distance greater than 10 feet from the point of discharge. The edge of this zone shall be referred to as the acute criteria compliance boundary.

The acute and chronic zone dilution factors for effluent discharging into the receiving water have been determined at the critical condition using the UDKHDEN plume model (Muellenhof, 1985). UDKHDEN is approved by the U. S. Environmental Protection Agency for single port discharges. The minimum dilution factors haven been determined to be:

	Acute	Chronic
Aquatic Life	15	69
Human Health, Carcinogen	--	69
Human Health, Non-carcinogen	--	69

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality based effluent limits varies with the point at which the pollutant has its maximum effect. The derivation of surface water quality based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

The critical condition for the Columbia River is the seven-day average low river flow with a recurrence interval of ten years (7Q10). Ambient data, at critical conditions in the vicinity of the mill outfall, were collected during low water surveys in 1990 and pervious years. Effluent data covered a full year of monitoring (1991). The modeling assumptions are as follows:

Parameter	Value Used
7Q10 Low Flow	80,900 cubic feet per second
Ambient Current (Minimum)	0.5 feet/second
pH	7.2
Water Depth (Minimum)	49.6 feet
Water Temperature (Maximum)	20.5° C
Wastewater Flow (Summer Maximum)	58.9 million gallons per day
Wastewater Temperature (Summer Maximum)	30.2° C

The impacts of dissolved oxygen deficiency, temperature, pH, fecal coliform, chlorine, ammonia, metals, and other toxics were determined as shown below, using the dilution factors at critical conditions described above.

BOD₅ --Under critical conditions, there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, the technology based effluent limitation for BOD₅ was placed in the permit.

Temperature – The Columbia River has been listed as an impaired water body along its entire length. However, most of the data used in the listing were obtained from sampling points located in the tributaries of the water body. Ecology is unable, with the limited data available, to make a determination that the Columbia River should be or should not be listed in the vicinity of the Fort James discharge. Ecology will require a study in the permit to determine if the Columbia River should be placed on the 303(d) list as an impaired water body with respect to temperature in the township where the mill discharge is located.

A model was used in 1992 to predict the potential impact of the discharge on ambient water temperature. The temperature of the receiving water was modeled using the UDKHDEN plume model at the critical condition. The maximum predicted temperature change at the boundary of

the chronic mixing zone was 0.1° C. This complies with the Water Quality Standard (WAC 173-201A) allowable impact of 0.3° C when natural ambient conditions exceed 20° C. Under critical conditions, there is no predicted violation of the Water Quality Standards for surface waters. Therefore, no effluent limitation for temperature was placed in the proposed permit. However, continuous monitoring, recording, and reporting of the temperature will continue to be required in the permit. Also, a Permittee conducted ambient water temperature study will provide the additional data necessary for a temperature listing evaluation.

pH -- Under critical conditions, there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, the technology based effluent limitations for pH was placed in the permit. The Permittee will monitor on the final effluent pH. Any excursions below 5.0 or above 10.0 will be considered as violations. Continuous monitoring, recording, and reporting of the pH are permit requirements for Outfalls 001 and 002.

Toxic Pollutants --Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology based effluent limits. Facilities with technology based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality based effluent limits.

As reported in the Permittee's application submitted for permit renewal, the following chemicals with water quality criteria were detected and evaluated: ammonia, chromium, copper, lead, nickel, and zinc. Ecology is required to determine if a reasonable potential exists for exceeding one or more of the Water Quality Standards. A reasonable potential analysis was conducted with these parameters to determine whether or not effluent limitations should be required in this permit. The determination employed EPA procedures at the critical condition. The parameters used in the critical condition modeling are stated above. The determination resulted in no reasonable potential.

The Permittee is required in Section S.9 of the proposed permit to collect background concentrations near the point of discharge. This information may result in a permit modification or limits in the next renewal. Water quality criteria for metals in Chapter 173-201A WAC are based on the dissolved fraction of the metal. The Permittee may provide data clearly demonstrating the seasonal partitioning of the dissolved metal in the ambient water in relation to an effluent discharge. Metals criteria may be adjusted on a site-specific basis when data is available, clearly demonstrating the seasonal partitioning in the ambient water in relation to an effluent discharge. Metals criteria may also be adjusted using the water effects ratio approach established by U.S. EPA, as generally guided by the procedures in U.S. EPA Water Quality Standards Handbook, December 1983, as supplemented or replaced.

WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests

measure the aggregate toxicity of the whole effluent, and therefore, this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Acute toxicity tests measure mortality as the significant response to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests are providing an indication of the potential lethal effect of the effluent to organisms in the receiving environment.

Chronic toxicity tests measure various sublethal toxic responses such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test of an organism with an extremely short life cycle or a partial life cycle test on a critical stage of one of a test organism's life cycles. Organism survival is also measured in some chronic toxicity tests.

Accredited WET testing laboratories have the proper WET testing protocols, data requirements, and reporting format. Accredited laboratories are knowledgeable about WET testing and capable of calculating an NOEC, LC₅₀, EC₅₀, IC₂₅, etc. All accredited labs have been provided the most recent version of the Department of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*, which is referenced in the permit. Any Permittee interested in receiving a copy of this publication may call the Ecology Publications Distribution Center (360-407-7472) for a copy. Ecology recommends that Permittee send a copy of the acute or chronic toxicity sections(s) of their permits to their laboratory of choice.

An effluent characterization of acute and chronic toxicity was conducted during the previous permit term. In accordance with WAC 173-205-060, the Permittee must repeat this effluent characterization because mill production processes have changed since this study was conducted. In accordance with WAC 173-205-060(1), the proposed permit requires another effluent characterization for toxicity.

HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

A determination of the discharge's potential to cause an exceedance of the human health water quality standards was conducted as required by 40 CFR 122.44(d). The reasonable potential determination was evaluated with procedures given in the Technical Support Document for Water Quality Based Toxics Control (EPA/505/2-90-001) and the Department's Permit Writer's Manual (Ecology Publication 92-109, July 1994). The determination indicated that the discharge has no reasonable potential to cause a violation of applicable standards, thus an effluent limit is not warranted.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittee to evaluate the potential for the discharge to cause a violation of applicable standards

(WAC 173-204-400). The Department has determined through a review of this monitoring that this discharge has no reasonable potential to violate the Sediment Management Standards.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect beneficial uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved. The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

MONITORING SCHEDULE AT EFFECTIVE DATE

All parameters listed in this section shall be monitored at effective date until the expiration of the permit.

Category	Parameter	Units	Sample Point (Point of Compliance)	Minimum Sampling Frequency	Sample Type
Wastewater	Flow	MGD	Final Effluent	Daily	Continuous Recording
Wastewater	BOD ₅	mg/l	Final Effluent	Daily	24-hour Composite
Wastewater	TSS	mg/l	Final Effluent	Daily	24-hour Composite
Wastewater	pH	Standard Units	Final Effluent		Continuous Recording
Wastewater	Temperature	⁰ F	Final Effluent	Daily	Continuous Recording
	Kraft Pulp Production	ADT/Day	To the bleach plant	Daily	
	Paper Production	MDT/Day	At the Reel	Daily	
Wastewater	AOX	µg/l	Final Effluent	Daily	24-hour Composite

Category	Parameter	Units	Sample Point (Point of Compliance)	Minimum Sampling Frequency	Sample Type
Wastewater	TCDD	pg/l	Bleach Plant Effluent	Monthly	24-hour Composite
Wastewater	TCDF	pg/l	Bleach Plant Effluent	Monthly	24-hour Composite
Wastewater	TCDD	pg/l	Final Effluent	Semi-annual	24-hour Composite
Wastewater	TCDF	pg/l	Final Effluent	Semi-annual	24-hour Composite
Wastewater	Chloroform	µg/l	Bleach Plant Effluent	Weekly	24-hour Composite
Wastewater	Trichlorosyringol 3,4,5-trichlorocatechol 3,4,6-trichlorocatechol 3,4,5-trichloroguaiacol 3,4,6-trichloroguaiacol 4,5,6-trichloroguaiacol 2,4,5-trichlorophenol 3,4,6-trichlorophenol Tetrachlorocatechol Tetrachloroguaiacol 2,3,4,6-tetrachlorophenol Pentachlorophenol	µg/l	Bleach Plant Effluent	Monthly	24-hour Composite
Sludge	2,3,7,8-TCDD	ng/kg	Primary Sludge	Annually	Grab
	2,3,7,8-TCDF				

LAB ACCREDITATION

With the exception of certain parameters, the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*. The laboratory at this facility is accredited for BOD, TSS, and pH. The mill hires accredited laboratories to perform all other permit testing and data requirements.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S.3 are based on the authority to specify any appropriate reporting and record-keeping requirements to prevent and control waste discharges (WAC 173-220-210).

SPILL PLAN

The Department has determined that the Permittee stores a quantity of chemicals that have the potential to cause water pollution if accidentally released. The Department has the authority to require the Permittee to develop best management plans to prevent this accidental release under Section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080.

The Permittee has developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The proposed permit requires the Permittee to update this plan and submit it to the Department.

SOLID WASTE PLAN

The Department has determined that the Permittee has a potential to cause pollution of the waters of the state from leachate at the mill's solid waste landfill. This proposed permit requires, under authority of RCW 90.48.080, that the Permittee develop a solid waste plan to prevent solid waste from causing pollution of waters of the state. The plan must be submitted to the Department for approval.

WATER TEMPERATURE STUDY

Several points on the lower Columbia River have been identified on the 1998 Section 303(d) listing for temperature. There is no data on a continuous basis for temperature and only very little limited data on grabs sampling near the Permittee's discharge. The sampling points for temperature that were in the 303(d) listing only involved sites that were far apart and not within the Permittee's chronic dilution zone boundary. As a result of the limited data, the proposed permit will require the Permittee to perform a receiving water (Columbia River) temperature study in the vicinity of the mill's outfall for two years during the critical ambient temperature period.

TOTAL CHLORINE FREE FEASIBILITY ANALYSIS

The Permittee is required to submit to the Department a comprehensive analysis of converting to a totally chlorine free (TCF) bleaching process. This analysis shall include complete technology conversion description, itemized costs to convert, and detailed market outlook/viability for TCF product. The analysis shall specify the capital cost to convert and the predicted product sales impacts and long term economic viability resulting from the conversion.

EFFLUENT DILUTION RATIO STUDY

The Department has estimated the amount of mixing of the discharge within the authorized mixing zone to determine the potential for violations of the Water Quality Standards for Surface Waters (Chapter 173-201A WAC). The Permittee shall update a dilution ratio study after April 16, 2001, and submit to the Department for approval within three years from the permit's effective date. The results of the updated study will be implemented during the next permit cycle.

OUTFALL EVALUATION

Proposed permit condition S.12 requires the Permittee to conduct an outfall inspection and submit a report detailing the findings of that inspection within the fourth year and six months of the permit's effective date. The purpose of the inspection is to determine the condition of the discharge pipe and diffusers and to evaluate the extent of sediment accumulations in the vicinity of the outfall.

TREATMENT SYSTEM OPERATING PLAN

In accordance with state and federal regulations, the Permittee is required to take all reasonable steps to properly operate and maintain the treatment system (40 CFR 122.41(e)) and WAC 173-220-150 (1)(g). An operation and maintenance manual was submitted as required by state regulation in the previous permit. It has been determined that the implementation of the procedures in the Treatment System Operating Plan is a reasonable measure to ensure compliance with the terms and limitations in the permit. Special Condition S.4 in the permit will require the Permittee to update its Treatment System Operating Plan within six months of the permit's effective date and any major modification to the treatment system. The Permittee will conduct a treatment system adequacy demonstration to ensure compliance with the terms and limitation of the permit after the Cluster Rule implementation has been completed.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual industrial NPDES permits issued by the Department.

Condition G1 requires responsible officials or their designated representatives to sign submittals to the Department. Condition G2 requires the Permittee to allow the Department to access the treatment system, production facility, and records related to the permit. Condition G3 specifies conditions for modifying, suspending or terminating the permit. Condition G4 requires the Permittee to apply to the Department prior to increasing or varying the discharge from the levels stated in the permit application. Condition G5 requires the Permittee to construct, modify, and operate the permitted facility in accordance with approved engineering documents. Condition G6 prohibits the Permittee from using the permit as a basis for violating any laws, statutes or regulations. Conditions G7 and G8 relate to permit renewal and transfer. Condition G9 requires the Permittee to control its production in order to maintain compliance with its permit. Condition G10 prohibits the reintroduction of removed substances back into the effluent. Condition G11 states that the Department will modify or revoke and reissue the permit to conform to more stringent toxic effluent standards or prohibitions. Condition G12 incorporates by reference all other requirements of 40 CFR 122.41 and 122.42. Condition G13 notifies the Permittee that

additional monitoring requirements may be established by the Department. Condition G14 requires the payment of permit fees. Condition G15 describes the penalties for violating permit conditions.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards for Surface Waters, Sediment Quality Standards, or Water Quality Standards for Ground Waters, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. The Department proposes that this proposed permit be issued for five years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA):

- 1992 National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.
- 1991 Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.
- 1988 Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. U.S. EPA Office of Water, Washington, D.C.
- 1985 Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.
- 1983 Water Quality Standards Handbook. U.S. EPA Office of Water, Washington, D.C.

Tsivoglou, E. C., and J. R. Wallace.

- 1972 Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology:

- 1994 Permit Writer's Manual. Publication Number 92-109

Wright, R .M., and A .J. McDonnell:

- 1979 In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on Page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

The Department will publish a Public Notice of Draft (PNOD) in February 2001 in the *Columbian* Newspaper to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. on weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Department of Ecology
Industrial Section
300 Desmond Drive S.W.
P.O. Box 47600
Lacey, WA 98504-7600
Attention: Teddy V. Le, P.E.

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by writing to the address listed above.

This permit and fact sheet were written by Teddy Le.

APPENDIX B—GLOSSARY

Acute Toxicity--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

AKART-- An acronym for “all known, available, and reasonable methods of treatment.”

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia—High concentrations of ammonia are toxic to aquatic organisms. They exert an oxygen demand and contribute to eutrophication. The Camas Mill wastewater has very little ammonia, so nitrogen compounds are added to the effluent to facilitate biological treatment.

Average Monthly Discharge Limitation --The arithmetic average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect potable water, industrial water, and domestic sewage for pathogens harmful to human health.

Chronic Toxicity--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's life span or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a compliance inspection--without sampling, and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits and, for municipal facilities, sampling of influent to ascertain compliance with the 85% removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring --Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water or the impairment of beneficial uses. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction, e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

EC₅₀ (Effective Concentration, 50%)--Means the effluent concentration estimated to cause an adverse effect in 50% of the test organisms in a toxicity test involving a series of dilutions of effluent.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated domestic sewage and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

IC₅₀ (Inhibition Concentration, 50%)--Means the effluent concentration estimated to cause a 50% reduction in a biological function in a toxicity test involving a series of dilutions of effluent.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

LC₅₀ (Lethal Concentration, 50%) means the effluent concentration estimated to cause death in 50% of the test organisms in a toxicity test involving a series of dilutions.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minimum Level (ML)—The level at which an analytical system gives a recognizable signal and an acceptable calibration point.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--An area that surrounds an effluent discharge within which water quality standards may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

NOEC (No Observed Effect Concentration)--The highest measured continuous concentration of an effluent or a toxicant that causes no observed effect on a test organism.

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)--A calculated value five times the MDL (method detection level).

Responsible Corporate Officer--A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the State of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface water body or a constructed infiltration facility.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality Based Effluent Limit--A wastewater parameter concentration limit that is intended to prevent the concentration of that parameter from exceeding a water quality standard after it is discharged into a receiving water.

APPENDIX C—RESPONSE TO COMMENTS

Refer to the document “Proposed N.P.D.E.S. Permit Renewal – Response to Comments”